

# THE MOSASAUR



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# **THE MOSASAUR**

## **The Journal of the Delaware Valley Paleontological Society**

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**COVER** — A reconstruction of the terrain at the Port Kennedy, Pennsylvania, sinkhole that preserved a Late Irvingtonian fauna and flora. (See the paper by Daeschler, Spamer, and Parris in this volume.) Rendered by Bruce Mohn, Copyright © Bruce Mohn.

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The Delaware Valley Paleontological Society thanks the Department of Malacology, Academy of Natural Sciences of Philadelphia, for the facilities to produce the camera-ready pages of this volume. Page composition by Earle Spamer.

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# A Pleistocene Horse from Connecticut

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**ABSTRACT** — A Pleistocene horse from the bank of the Connecticut River near Glastonbury, Hartford County, is identified as *Equus cf. niobrarensis*. There are eight other records of Pleistocene mammals from Connecticut, six of the American mastodon and two of cervids.

## Introduction

VERY FEW FOSSIL MAMMALS are known from Connecticut. In fact, the only fossil mammals reported from the state are of Pleistocene age. Furthermore, these reports are limited to six occurrences of the American mastodon (*Mammot americanum*), one of a "deer" and one of a caribou (*Rangifer tarandus*) (Hay, 1923; Flint, 1930; Schoch and Lucas, 1982). Here, I add to this meager record by documenting a Pleistocene horse from near Glastonbury, Connecticut (see Fig. 1 for localities mentioned in this paper), in the collections of the Peabody Museum of Natural History at Yale University (YPM). I also review briefly the other records of Pleistocene mammals from Connecticut.

## Pleistocene Horse

The Pleistocene horse found near Glastonbury is YPM 40001, a left  $P^2$  and  $M^{1-3}$ , right  $P^4$  and  $M^{1-3}$ , a partial lower jaw with right  $P_2-M_3$  and left  $P_{2-4}$  and  $M_{2-3}$ , four incisors, a right humerus and a right tibia, apparently from a single individual (Fig. 2). These bones are poorly mineralized and slightly weathered; the long bones and jaw fragment have a distinctly brown hue, but the enamel of the teeth is nearly white.

Mr. Morris Bull collected YPM 40001 from the bank of the Connecticut River near Glastonbury and donated it to the YPM. Because the specimen is accompanied by a note written by Malcolm Rutherford Thorpe, who was professor of geology and curator of vertebrate fossils at the YPM until his retirement in 1938, and because it was not mentioned in Flint (1930), which has a foreword dated 22 November 1929, I assume YPM 40001 arrived at the Peabody Museum sometime between 1929 and 1939. However, no records are available that give a precise date of collection or acquisition by the museum.

Because no more exact provenance is available, and because no sediment adheres to the bones, it is difficult to say anything precise about the original geological context of YPM 40001. Nevertheless, this specimen represents a horse taxon of Pleistocene age, and glacio-lacustrine deposits of Pleistocene age are exposed along the Connecticut River near Glastonbury (Antevs, 1922; Flint, 1930, 1953; Lougee, 1939; Schafer and Hartshorn, 1965; Curran and Dincauze, 1977). Therefore, I assume that YPM 40001 was derived from one of these deposits, though exactly which deposit remains uncertain.

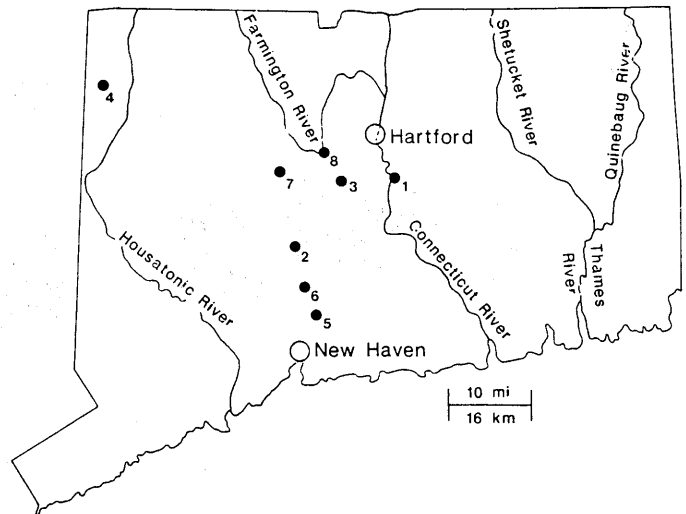


Figure 1. Map of Connecticut showing Pleistocene mammal localities, which are: 1, Glastonbury; 2, Cheshire; 3, New Britain; 4, Sharon; 5, North Haven; 6, Quinnipiac; 7, Bristol; 8, Farmington.

Although the current state of the taxonomy of Pleistocene horses from North America is both confused and confusing (e.g., Savage, 1951; Dalquest, 1978; Bennett, 1980; Kurtén and Anderson, 1980), enough distinctive elements of the Connecticut horse are preserved to enable its identification as *Equus cf. niobrarensis*. Features that justify this identification are:

1. The moderately worn upper and lower molars of YPM 40001 (Figs. 2C, F) have relatively simple enamel patterns.
2. The upper molar protocones (Fig. 2C) are slender and elongate.
3. The lower molar isthmuses (Fig. 2F) are intermediate (not extended far lingually or restricted far labially).
4. Dental measurements of YPM 40001 (Table 1) are very close to those reported for other specimens assigned to *E. niobrarensis*, including the type specimen USNM 4999 (e.g., Hay, 1913; Hibbard and Dalquest, 1966; Dalquest, 1967; Lundelius, 1972).
5. The limb bones (Figs. 2G, H) are relatively short and stout. Quantification of this observation using the measurement protocols of Harris and Porter (1980) produces

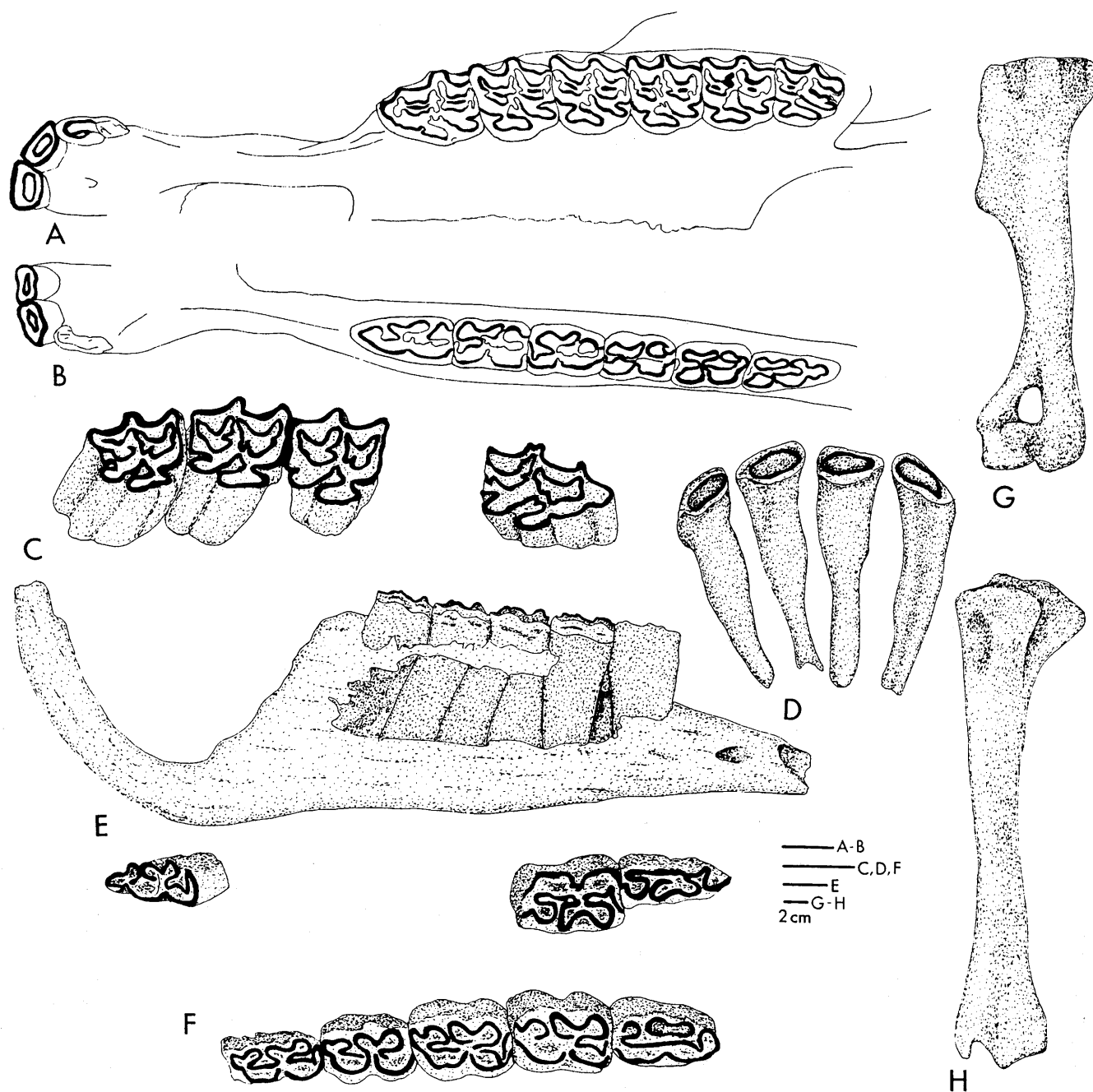


Figure 2. YPM 40001, *Equus niobrarensis* from the Pleistocene of Connecticut and the holotype dentition of *E. niobrarensis*. A-B, Upper (A) and lower (B) dentition of the holotype of *E. niobrarensis* in National Museum of Natural History, Smithsonian Institution, USNM 4999 (after Hay, 1913). C, Right  $P^4-M^3$  of YPM 40001, occlusal view. D, Occlusal view of incisors of YPM 40001. E, Labial view of incomplete right dentary bearing  $P_2-M_2$  of YPM 40001. F, Right  $P_2-M_2$ , right  $M_1$ , and left  $M_{2,3}$  free from mandible, occlusal views of YPM 40001. G, Anterior view of right humerus of YPM 40001. H, Posterior view of right tibia of YPM 40001.

Table 1. Measurements of the cheek teeth of YPM 40001, *Equus niobrarensis* from Connecticut.

| Upper Tooth                       | P2   |      | P4   | M1   | M2   | M3   |
|-----------------------------------|------|------|------|------|------|------|
| ectoloph length                   | 35.5 |      | 28.6 | 25.7 | 26.0 | 25.8 |
| width perpendicular to ectoloph   | 22.8 |      | 27.3 | 26.3 | 24.8 | 22.4 |
| Lower Tooth                       | P2   | P3   | P4   | M1   | M2   | M3   |
| anteroposterior length            | 31.7 | 28.4 | 29.0 | 27.9 | 26.8 | 31.2 |
| width perpendicular to ectolophid | 16.4 | 20.2 | 20.2 | 18.1 | 16.3 | 13.7 |

values for YPM 40001 that are very close to or within the range of values they reported for specimens assigned to *E. niobrarensis*. These values for YPM 40001 are: maximum humerus length = 300 mm, minimum shaft diameter = 39.2 mm; maximum tibia length = 365 mm, maximum distal diameter = 74.1 mm.

Assignment of YPM 40001 to *E. niobrarensis* thus is well justified. However, given the current need for a revision of *Equus*, and the wide geographic range extension the Connecticut horse documents if it is *E. niobrarensis*, I only identify this specimen as *Equus* cf. *niobrarensis*.

The Niobrara horse, *E. niobrarensis*, was one of the stout-limbed horses that inhabited North America during the Pleistocene. Most fossils of *E. niobrarensis* are from the western United States (Nebraska, New Mexico and Texas) and are of Irvingtonian age (about 1.8 million-400,000 years old; Lundelius et al., 1987). The occurrence of *Equus* cf. *niobrarensis* in Connecticut could be a significant geographic range extension of this species and a relatively old Pleistocene mammal from Connecticut.

### Connecticut's Pleistocene Mammals

Other than the Pleistocene horse reported here, there are eight documented occurrences of Pleistocene mammals in Connecticut:

1. Silliman (1828) noted that in 1827, three or four large molars of a "mammoth" were found near Cheshire, New Haven County, in gravel a few feet below the surface. From Silliman's description of these teeth it is evident that they belong to a mastodon (Hay, 1923, pp. 47-48). Warren (1852) stated that these teeth were found while building a canal. The current location of these teeth is unknown.

2. In 1833, a nearly complete dorsal vertebra of a mastodon was found about 3 feet (0.9 m) below the surface in New Britain, Hartford County (Anonymous, 1835). Additional bones were found in 1852 at the same locality according to Schuchert (1914). Some of these additional bones, which are proboscidean, presumably mastodon, are now housed in the Peabody Museum as YPM 40002.

3. A mastodon bone, probably from Sharon, Litchfield County, was supposedly presented to Yale College in 1835 (Anonymous, 1835), but I have been unable to locate this specimen in the YPM.

4. Prior to 1850, antlers of a "deer" were removed from a varved clay at a depth of 10 to 15 feet (3-4.6 m) at the Stiles Clay Pit in North Haven, New Haven County (Dana 1871).

5. Dana (1875) reported the discovery of the right humerus and left tibia of a caribou in Crafts Clay Pit at

Quinnipiac, New Haven County. According to Dana, both bones were found in a varved clay, the humerus 11 feet (3.3 m) below the top of the clay and the tibia 7 feet (2.1 m) below the top. According to Dana, O. C. Marsh identified the tibia as *Rangifer tarandus* and the humerus as *R. caribou*. However, these bones, now YPM 11161 and 11162, appear to belong to the same species, and I tentatively identify them as *R. tarandus*.

6. Hubbard (1885) stated that mastodon material was collected at Bristol, Hartford County, but no additional information was provided.

7. The Farmington mastodon (*Mammuth americanum*) is a nearly complete skeleton, lacking one tusk and most of the foot bones, found in a swamp about 1 mile (1.6 km) east of Farmington, Hartford County (Schuchert, 1914). This specimen was long on display at the American Indian Archaeological Institute in Washington, Connecticut, but recently was returned to YPM.

I find it interesting that the few documented Pleistocene mammals from Connecticut were discovered before the Second World War. Surely, construction, excavation and geological fieldwork has uncovered other specimens since then. Hopefully, the review of the occurrences of Pleistocene mammals presented here may provide an impetus to report more recent finds.

### Acknowledgments

I thank Elaine Anderson, Debra Bennett and Robert Schoch for comments on the identity of YPM 40001 and John Ostrom and Mary Ann Turner for access to the YPM collections.

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